

occupying the greatest part of the metapleura, and very slightly sculptured. Distant (Rhyach. Brit. Ind. iv. p. 464) has also described the genus (under the wrong name "*Protophantasta*") and says in the description: "tibiæ longitudinally grooved." Should the tibiæ really prove to be sulcated in the species described by Distant, this would be a most unusual and aberrant specific character of that species, as the cylindrical non-sulcate tibiæ is one of the principal characters of the *Acanthosomatinae*. I have seen no member of this subfamily with furrowed tibia.

Five species of this curious genus were previously known, one from Ceylon, two from Sumatra, one from Java, and one from Borneo.

XLI.—Notes on the Genus *Nyctophilus*.

By OLDFIELD THOMAS.

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WHEN describing the new genus *Pharotis* last year I published * a cursory survey of its ally, *Nyctophilus*, and finding out in what direction further material was most urgently needed, I made an appeal to the authorities of the Australian Museum, Sydney, for specimens from Eastern Australia.

Through the kindness of Mr. A. R. McCulloch, that appeal has been most liberally responded to, and I have been entrusted with their whole collection of the genus, numbering no less than 42 specimens from various localities, all preserved in spirit, thus supplementing the British Museum material, which is largely in skin.

On studying these spirit-specimens I find that most useful differential characters may be drawn both from the development of the nose-leaf, hitherto supposed to be the same throughout the genus, and from the structure of the bone to which I have recently drawn attention in squirrels, the baculum or penis-bone.

The facial membranes consist, firstly, of a definite semi-circular leaf surmounting the nostrils, with or without a median notch in its upper edge, and, secondly, of a rounded elevation behind it, more or less divided centrally into two halves, and varying in its development in three different degrees, which may be briefly described as follows:—

1. Elevation quite low, rounded, nearly uniformly hairy, division into two scarcely perceptible.

* Ann. & Mag. N. H. (8) xiv. p. 383.

2. Higher, divided in the centre by a notch, the median line of which tends to be grooved, naked, and of a different texture to the rest*.

3. Much higher, the two divisions connected with each other, and surpassed above, by a median, smooth, and naked membrane, which is folded to form a Y-shaped groove on its anterior surface †.

There is, however, a nearly complete continuity of development from one extreme to the other, so that the position of individual specimens may occasionally be in doubt.

The baculum in *Nyctophilus* has a broad stout bifid base and a downwardly curved shaft, generally about $2\frac{1}{2}$ –3 times the length of the breadth of the base. Its tip may be either simple and slightly flattened, or bifurcate.

The species are here taken geographically, beginning with the west and passing first eastwards and then to the north and north-west.

1. *Nyctophilus major*, Peters.

Abh. Ak. Berl. 1860, p. 125 (1861), ex Gray, Voy. Ereb. Terr. pl. xxi. fig. 2 (plates prepared in 1845, not published till 1875).

Size largest of the genus, a skull measuring 19·8 mm. in greatest length; maxillary tooth-row 7·3. Bullæ fairly large, 4·3 mm.

No spirit-specimens available, but the nose-leaf appears from skins to be of the less-developed type. No bacula seen.

Hab. Western Australia. Type from Perth. Other specimens from King George's Sound, Southern Cross, &c.

Type. B.M. no. 44. 7. 9. 20.

2. *Nyctophilus geoffroyi*, Leach.

Trans. Linn. Soc. xiii. p. 78 (1822).

N. australis, Peters, Abh. Ak. Berl. 1860, p. 123, plate (1861).

Size small or medium. Ears proportionally large. Nose-leaf of the most highly developed type, as described under 3, above. Baculum with the normal broad bifid base and simple slightly flattened tip. Bullæ large.

Three subspecies may be recognized:—

* Dobson's figure (Catalogue, pl. xi. fig. 7) corresponds to this degree of development, but is slightly exaggerated towards the third type.

† Peters's figure of *Nyctophilus australis* (Abh. Ak. Berl. 1860, plate, fig. 2) shows this leaf, but does not indicate the Y-shaped groove seen in the best-developed specimens.

a. *N. geoffroyi geoffroyi*.

Synonymy as above.

Size smaller, a skull 14 mm. in condylo-basal length, maxillary tooth-row 5.5. Bulla 4.0. Colour rather dark.

Hab. West Australia. Type-locality, as identified by Tomes *, Albany, King George's Sound.

b. *N. geoffroyi pallescens*, Thos.

Ann. & Mag. N. H. (8) p. 79 (1913).

Like true *geoffroyi*, but colour much paler. Skull: greatest length 15.3 mm.; maxillary tooth-row 5.7; bulla 3.8.

Hab. Arid central region of Australia. Type-locality, Alexandria, Northern Territory. Other specimens from Lake Eyre, S. Australia, and Normanton, N.W. Queensland.

Type. B.M. no. 7. 1. 4. 1.

c. *N. geoffroyi pacificus*, Gray.

Barbastellus pacificus, Gray, Zool. Misc. p. 8 (1831) ("Islands of the Pacific").

Nyctophilus unicolor, Tomes, P. Z. S. 1858, p. 33 (Tasmania).

Averaging rather larger than true *geoffroyi*. Type-skull 15.8 mm. in greatest length; maxillary tooth-row 5.5; bulla 3.8. Colour dark.

Hab. S.E. Australia and Tasmania. Exact locality of type not known, but a specimen from Gippsland agrees closely with it. A well-preserved series from Mt. Kosciusko in the Australian Museum.

Type in the British Museum.—Old Collection.

3. *Nyctophilus sherrini*, sp. n.

Size large, only slightly less than in *N. major*. Ears of medium size for the genus. Colour faded in the only specimen available. Nose-leaf of a little-developed type, between Nos. 1 and 2, therefore contrasting with the other Tasmanian species, *N. geoffroyi (pacificus)*, which has a No. 3 nose-leaf. Baculum slender, the shaft but little curved, narrow and high in section, tapering terminally to a fine point.

Skull shorter than that of *N. major*, the brain-case higher and more rounded. Sagittal crest well developed. Tooth-row decidedly shorter than in *N. major*.

Dimensions of the type (measured on the spirit-specimen):—

Forearm 45 mm.

* *Cy.* P. Z. S. 1906, p. 470. Specimen now B.M. no. 7. 1. 1. 338.

Head and body 55 ; tail 45 ; ear 26×17.5 ; third finger, metacarpal 40, first phalanx 16 ; lower leg and hind foot (c. n.) 28.3. Baculum 4.4.

Skull : greatest length 18.5 ; condylo-basal length 17.2 ; zygomatic breadth 11.4 ; palato-sinual length 7.1 ; bulla 4.2 ; maxillary tooth-row 6.9.

Hab. Tasmania.

Type. Adult male in spirit. B.M. no. 52.1.15.50. Collected and presented by Mr. Ronald Gunn.

This fine species is evidently most nearly related to the West Australian *N. major*, but has a smaller and differently shaped skull and shorter tooth-row. It is far larger than the other Tasmanian form, *N. geoffroyi pacificus*, of which Tomes's *N. unicolor* is a synonym.

It is named in honour of Mr. W. R. Sherrin, to whom every mammalogist who has visited the Museum is indebted for assistance, and whose admirable preparation of tiny skulls and tinier bacula has so immensely helped in the mammalian work done both by staff and visitors.

4. *Nyctophilus gouldi*, Tomes.

P. Z. S. 1858, p. 31.

Size rather large. Ears large. Nose-leaf of middle development, as 2 above. Baculum stout, little curved, thick for its basal portion, then abruptly narrowing in its terminal third to a long point. Bullæ larger.

Skull of an adult male from Sydney—greatest length 17.7 mm. ; maxillary tooth-row 6.4 ; bulla 4.2.

Hab. New South Wales and South Queensland. Type-locality, Moreton Bay. Specimens examined from the Blue Mountains and Sydney northwards to Gin Gin, near Bundaberg, Queensland, 25° S. lat.

Type. B.M. no. 7.1.1.339.

5. *Nyctophilus bifax*, sp. n.

Size fairly large. Ears decidedly smaller than in *N. gouldi*. Colour medium, a fresh skin cinnamon-brown above, little paler below. Nose-leaf of the least degree of development, No. 1, above. Skull strongly built, with well-developed ridges ; bullæ smaller than in *N. gouldi*. Baculum stout, scarcely tapering for its basal half, then narrowing slightly to the tip, which is distinctly bifurcate, the prongs parallel, separated by a semicircular concavity corresponding to the flattened end in other species.

Dimensions of the type (in spirit) :—

Forearm 41 mm. (range 40–43).

Head and body 54; tail 43; ear 23.5×15 ; third finger, metacarpus 38, first phalanx 15.5; lower leg and hind foot (c. n.) 27.5. Baculum 3.2.

Skull: greatest length 17.7; condylo-basal length 15.8; zygomatic breadth 10.6; palato-sinual length 6.5; maxillary tooth-row 6.5; bulla 3.7.

Hab. North Queensland, within the tropics. Type from Herberton. Other specimens seen from Cooktown, Cloncurry, Cape York, and Torres Straits Islands, about 20 in all.

Type. Adult male. B.M. no. 15. 3. 13. 3. Original number 579. Presented by the Australian Museum, Sydney.

This species, while readily distinguishable from all the previous ones by its bifurcate baculum and small bullæ, is somewhat nearly allied to the next, *N. microtis*. From that, however, it differs by its rather larger size, heavier skull, longer palate, and by the considerably greater stoutness of its baculum. All five of the bacula I have examined are of similar thickness, and contrast markedly with the slender bone extracted from the type of *N. microtis*.

6. *Nyctophilus microtis*, Thos.

Ann. & Mag. N. H. (6) ii. p. 226 (1888).

Size rather smaller than in *N. bifax*. Ear short. Nose-leaf of medium development. Skull smaller and more slenderly built than in *bifax*. Baculum essentially as in *bifax*, but very much more slender.

The typical skull has the palato-sinual length 5.3 mm., maxillary tooth-row 5.6. A more perfect skull from the Aroa River is measured below. Baculum 3.5.

Hab. British New Guinea.

Deceived by the indifferent material then available, I somewhat exaggerated in my original description the shortness of of the ears of this bat. They are really but little shorter than those of *N. bifax*, and do not indicate any near relationship with *N. walkeri*.

Of this species two colour races may be distinguished:—

a. *N. microtis microtis*.

Colour brown, about as in *N. bifax*; under surface not, or scarcely, lighter than upper.

Hab. Sogere, Owen Stanley Range.

Type. B.M. no. 88. 4. 14. 1.

b. *N. microtis bicolor*, subsp. n.

Colour greyish brown ("olive-brown") above. Under surface strongly contrasted greyish white, the hairs slaty at their bases, their terminal halves creamy white.

Dimensions of the type (measured on the skin):—

Forearm 40 mm.

Ear (moistened) 21×14.5 . Third finger, metacarpal 37, first phalanx 14.5 ; lower leg and hind foot (c. u.) 25.5 .

Skull: greatest length 16.5 ; palato-sinual length 6; maxillary tooth-row 5.9 .

Hab. Aroa River, British New Guinea. Near coast.

Type. B.M. no. 5. 11. 28. 2. Collected 20th December, 1904, by A. S. Meek.

This bat is presumably the representative in the low-lying coast-country of the *N. microtis* of the mountains behind. I have, however, seen neither spirit-specimen nor baculum of it, so that it may possibly prove to be more distinct from *N. microtis* than I can now determine.

7. *Nyctophilus dædalus*, sp. n.

Size fairly large. Ears about as in *N. bifax*, smaller than in *gouldi*. Colour, of a skin from Melville Island, rich brown, between Prout's brown and mummy-brown; underside lighter, near "Saccardo's umber." Nose-leaf low, little developed, as No. 1 above. Skull much as in *N. bifax*, the bullæ markedly smaller than in *N. gouldi*. Baculum short, tapering, flattened terminally, not bifurcate.

Dimensions of the type (in spirit):—

Forearm 41 mm.

Head and body 52; tail 41; ear 22×15.5 ; third finger, metacarpal 37.5 , first phalanx 15; lower leg and hind foot (c. u.) 25. Baculum 3.7.

Skull: greatest length 17.3; condylo-basal length 16; zygomatic breadth 11.6; palato-sinual length 6.6; maxillary tooth-row 6.5; bullæ 3.6.

Hab. Northern Territory. Type from the Daly River; other specimens from Port Essington and Melville Island.

Type. Adult male. B.M. no. 97. 4. 12. 8. Collected July 1894 by Dr. Dahl. Received in exchange from the Christiania Museum.

This species differs from *N. gouldi* by its smaller bullæ and less developed nose-leaf, and from *N. bifax* by its simple baculum.

S. Nyctophilus walkeri, Thos.

Ann. & Mag. N. II. (6) ix. p. 405 (1892).

Size conspicuously smaller and ears shorter than in any other species. Nose-leaf of medium development (No. 2). Baculum not known.

Skull far smaller than in other species, bullæ hardly larger than in ordinary short-eared Vespertilionine bats.

Forearm 33.5 mm.

Skull: greatest length 13; condylo-basal length 12.2; bulla 2.8; maxillary tooth-row 4.7.

Hab. Northern Territory (Adelaide River).

Type. Adult female. B.M. no. 92.4.4.1.

No further specimens of this most distinct little species have as yet been recorded. By its small size, proportionally small ears, and the correspondingly reduced bullæ, it may be said to be more different from all the other species than any of them are from each other. But there is nothing to indicate any superspecific distinction.

XLII.—On a minute Shrew from Lake Baikal.

By OLDFIELD THOMAS.

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DURING his recent expedition to Lake Baikal, unfortunately interrupted by the outbreak of war, Mr. G. A. Burney obtained a single specimen of an excessively small shrew, smaller than any *Sorex* known, and rivalling in minuteness the pygmy *Pachyura* of the *hodgsoni* group. It would appear to be allied to the Japanese *Sorex hawkeri* and the more recently described *S. tscherskii*, Ognev*, from the Ussuri. I would propose to call it

Sorex burneyi, sp. n.

Size excessively minute, less than in any known species of the genus. Fur of back only about 2.3 mm. in length (summer). General colour much as in *S. hawkeri*, light brown, near sepia, above, sides and under surface dull drabby whitish, not contrasted with colour of upper parts, and very far from white. Hands and feet dull brownish white. Tail

* Ann. Mus. St. Petersb. xviii. p. 412 (1913).